

# Humanistic Mathematics Network Journal

---

Issue 6

Article 1

---

5-1-1991

## Front Matter, Issue 6, 1991

Follow this and additional works at: <http://scholarship.claremont.edu/hmnj>

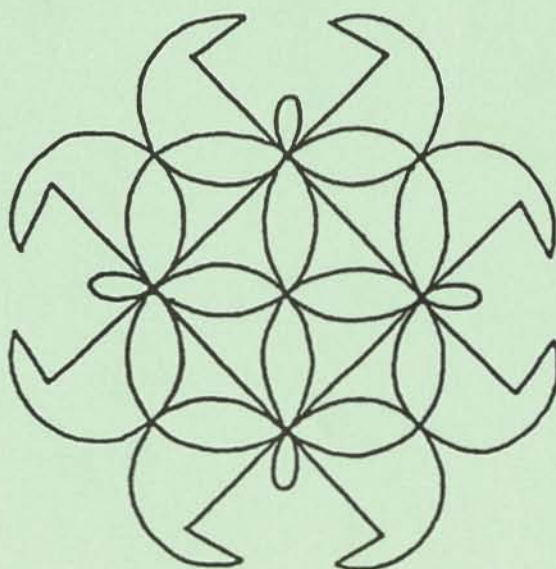
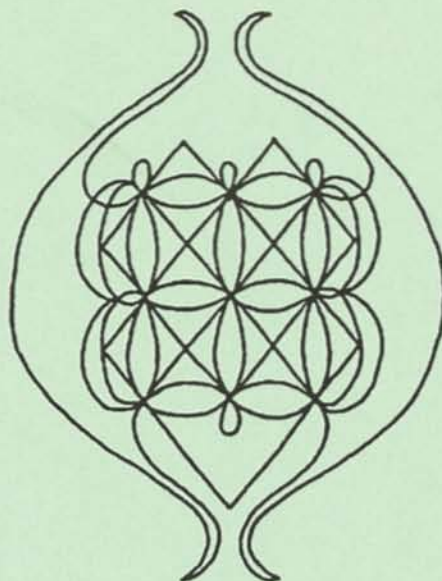
---

### Recommended Citation

(1991) "Front Matter, Issue 6, 1991," *Humanistic Mathematics Network Journal*: Iss. 6, Article 1.  
Available at: <http://scholarship.claremont.edu/hmnj/vol1/iss6/1>

This Front Matter is brought to you for free and open access by the Journals at Claremont at Scholarship @ Claremont. It has been accepted for inclusion in Humanistic Mathematics Network Journal by an authorized administrator of Scholarship @ Claremont. For more information, please contact [scholarship@cuc.claremont.edu](mailto:scholarship@cuc.claremont.edu).

**Humanistic Mathematics Network**  
**Newsletter #6**  
**May 1991**



## INVITATION TO AUTHORS

Essays, book reviews, syllabi and letters are welcome. Two copies, double spaced should be sent to Alvin White, HUM. MATH. NET., Harvey Mudd College, Claremont, CA 91711. If possible, avoid footnotes and put references and bibliography at the end using a consistent style. If you use a word processor please send a diskette in addition to the typed paper. *The Newsletter* is assembled using Microsoft Word 4.0 and PageMaker 4.0 on a Macintosh. It is possible, however, to convert from other word processing systems. Clean typed copy can be scanned (but not dot matrix). Your essay should have a title, your name and address, and a brief summary. Your telephone number (not for publication) would be helpful. Essays and communications may be transmitted by electronic mail to the editor at AWHITE@YMIR.BITNET.

## EDITOR

Alvin White  
*Harvey Mudd College*

## ASSOCIATE EDITORS

Harald Ness  
*University of Wisconsin Center*

Joel Haack  
*Oklahoma State University*

## PRODUCTION MANAGER

Lyle Wright  
*Harvey Mudd College*

## ASSISTANTS

Marci Daugherty  
Lisa Gragg  
Mark Schaal  
Gene VanNostern  
Steve Wakisaka  
Kathy Yano  
*Harvey Mudd College*

Christa Pickens  
*Scripps College*

## COVER

The figures on the cover were traced in the sand by the Malekula who live in Vanuatu in the South Pacific. They are two of at least ninety figures intimately related to the Malekula religious beliefs associated with death. Their stipulation is that each figure must be traced by covering every edge once and only once and, if possible, beginning and ending at the same point. The Malekula sand-tracing tradition, involving this challenge and the systems and procedures used to trace the figures, is but one example of mathematical ideas in a traditional culture. [For the Malekula procedures used to trace the cover figures and others, see *Ethnomathematics: A Multicultural View of Mathematical Ideas*, M. Ascher, Brooks/Cole, Belmont, 1991.]

Supported by a grant from the EXXON EDUCATION FOUNDATION



# TABLE OF CONTENTS

## From Newsletter #1

Alvin White

## From the Editor

## The Calculus Virgin

Louis Leithold ..... 1

## The Teaching of Arithmetic I: The Story of an Experiment

L. P. Benezet ..... 2

## The Teaching of Arithmetic II: The Story of an Experiment

L. P. Benezet ..... 7

## The Teaching of Arithmetic III: The Story of an Experiment

L. P. Benezet ..... 11

## Leibniz — Beyond The Calculus

Hardy Grant ..... 15

## An Historical Approach to Precalculus and Calculus

Victor J. Katz ..... 21

## An Alternative Approach to the History of Mathematics

Claudia Henrion ..... 26

## Student Seminars on "Famous Equations"

Richard G. Montgomery ..... 37

## The Human/Computer Interface: Their Side or Ours?

R. S. D. Thomas ..... 39

|  |    |
|--|----|
| Augsburg's Humanistic Curriculum Project<br>Larry Copes and Beverly Stratton .....   | 42 |
| Ethics In Mathematics: A Request for Information<br>Robert P. Webber .....           | 45 |
| How Mathematics Teachers Use "Writing to Learn"<br>Susan Hunter .....                | 46 |
| Mathematics and Philosophy: The Story of a Misunderstanding<br>Gian-Carlo Rota ..... | 49 |
| Mathematics: Contributions by Women<br>Jacqueline M. Dewar .....                     | 56 |
| Mathematics and Poetry: Isolated or Integrated?<br>JoAnne S. Growney .....           | 60 |
| Ultimately, Mathematics is Poetry<br>Alfred Warrinnier .....                         | 70 |
| The Hermeneutics of Mathematical Modeling<br>David Tudor .....                       | 78 |
| On Teaching in the Mathematical Sciences<br>James M. Cargal .....                    | 86 |
| Mathematics, Truth and Integrity<br>Peter Hilton and Jean Pedersen .....             | 90 |
| Mathematics for Life and Society<br>Miriam Lipschutz-Yevick .....                    | 94 |



## FROM NEWSLETTER #1

Dear Colleague,

August 3, 1987

This newsletter follows a three-day **Conference to Examine Mathematics as a Humanistic Discipline** in Claremont 1986 supported by the Exxon Education Foundation, and a special session at the AMS-MAA meeting in San Antonio January 1987. A common response of the thirty-six mathematicians at the conference was, "I was startled to see so many who shared my feelings."

Two related themes that emerged from the conference were 1) teaching mathematics humanistically, and 2) teaching humanistic mathematics. The first theme sought to place the student more centrally in the position of inquirer than is generally the case, while at the same time acknowledging the emotional climate of the activity of learning mathematics. What students could learn from each other, and how they might better come to understand mathematics as a meaningful rather than an arbitrary discipline were among the ideas of the first theme.

The second theme was focused less upon the nature of the teaching and learning environment and more upon the need to reconstruct the curriculum and the discipline of mathematics itself. The reconstruction would relate mathematical discoveries to personal courage, relate discovery to verification, mathematics to science, truth to utility, and in general, to relate mathematics to the culture in which it is embedded.

Humanistic dimensions of mathematics discussed at the conference included:

- a) An appreciation of the role of intuition, not only in understanding, but in creating concepts that appear in their finished versions to be "merely technical."
- b) An appreciation for the human dimensions that motivate discovery — competition, cooperation, the urge for holistic pictures.
- c) An understanding of the value judgments implied in the growth of any discipline. Logic alone never completely accounts for *what* is investigated, *how* it is investigated, and *why* it is investigated.
- d) There is a need for new teaching, learning formats that will help wean our students from a view of knowledge as certain, to-be-received.
- e) The opportunity for students to think like a mathematician, including a chance to work on tasks of low definition, to generate new problems and to participate in controversy over mathematical issues.
- f) Opportunities for faculty to do research on issues relating to teaching, and to be respected for that area of research.

This newsletter, also supported by Exxon, is part of an effort to fulfill the hopes of the participants. Others who have heard about the conferences have enthusiastically joined the effort. The newsletter will help create a network of mathematicians and others who are interested in sharing their ideas and experiences related to the conference themes. The network will be a community of support extending over many campuses that will end the isolation that individuals may feel. There are lots of good ideas, lots of experimentation, and lots of frustration because of isolation and lack of support. In addition to informally sharing bibliographic references, syllabi, accounts of successes and failures, . . . , the network might formally support writing, team-teaching, exchanges, conferences, . . . .

Please send references, essays, half-baked ideas, proposals, suggestions, and whatever you think appropriate for this quarterly newsletter. Also send names of colleagues who should be added to the mailing list. All mail should be addressed to

Alvin White

Department of Mathematics

Harvey Mudd College

Claremont, CA 91711

This issue contains some papers and excerpts of papers that were presented at the conferences.